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On-line monitoring of fermentation processes for 2G bioethanol production

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Abstract:

For many years, cellulosic-ethanol has been considered as an alternative to fossil and non-cellulosic fuels. However, the operational challenges and the lack of understanding of this process often result in poorly operated fermentations that limit their potential to compete with non-cellulosic fuels. In this work, we demonstrate advantages of implementing spectroscopic-based real-time monitoring methods combined with mechanistic models. These tools help to predict the dynamics of cellulose-to-ethanol fermentation and to early detect possible contaminations by lactic acid bacteria, achieving an operation closer to optimal conditions.